

REMARKS/ARGUMENTS

By the present amendment, the specification has been amended in a minor respect to improve its readability.

Claim 1 has been canceled and resubmitted as claim 11 to remove the objection/rejections contained in the Office Action of May 28, 2003. Specifically, reference numbers associated with various signals or values recited in the examined claims, have been deleted. Claim 11 has also been drafted to provide antecedent bases for all claim language.

Examined claims 1-8 and 10 were rejected on substantive grounds under 35 U.S.C. §102 on U.S. Patent 5,931,160 to Gilmore et al. Reconsideration and withdrawal of this rejection is respectfully requested in view of the following argument for allowance.

The gist of the present invention is to provide a feedback control system for an apparatus, such as an anaesthesia machine, having a pair of control loops.

A first control loop, having a breathing gas sample feedback (8) and a user interface (12) reference serves to regulate a gas mixer or other device in the anesthesia machine to, for example, provide the concentration of anesthetic agent in the breathing gases commanded by the user interface. Use of such a control loop alone raises concerns of safety and reliability due to control complexity, response times, undetected faults, and the like.

To overcome these concerns, the feedback control system of the present invention employs a second control loop to ensure that the anesthesia machine or other controllable device of the apparatus is operating properly to, for example, output the amount of anaesthetic agent that results in the desired breathing gas concentration. This control loop includes means for periodically providing a signal (16) from the output of the controllable device and a reference signal (17) for the operation of the controllable device. Discrepancies between these signals for the controllable device indicate incorrect regulatory action or faults in the feedback control system and if they differ significantly, safety measures are instituted to protect the patient.

As particularly noted in claims 15 and 16, the foregoing arrangement may be carried out by a valve (15a) that alternately supplies a breathing gas sample and a gas mixer output to a gas monitor (7) as feedback signals for a controller (9).

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The claimed invention stands in distinct contrast to any teaching or showing of U.S. Patent 5,931,160. The gist of this patent is to a ventilator control system that employs the hierarchical therapy control, mode control, breath control, cycle control, and ventilator control setting arrangement shown in Fig. 10. This hierarchical arrangement provides the control setting to the ventilator which is analogous to the output of user interface in the present application. The specific control and feedback elements of the ventilator, with which the present invention is concerned, are not shown in the '160 patent inasmuch as these elements are shown only as block diagrams 18 and 19 in Figs. 1, 2, 9, and 11. There is no disclosure of the details of these elements or, particularly, of a two-loop control system as specifically recited in application claims 11, et seq. The portion of Col. 10 noted in the Office Action deals with a single loop control system based on inhaled volume. The noted portion of Col. 17 describes the cyclical operation, or operating frequency of the system of the '160 patent.

In view of the absence of any teaching or suggestion of the claimed subject matter in the applied '160 reference, newly submitted claim 11 is not deemed anticipated by this reference.

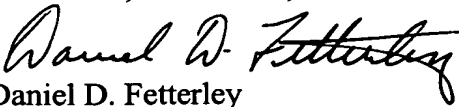
Further, in view of the advantages of the claimed subject matter, noted above and in the specification of this application, as filed, the subject matter of claim 11 is deemed patentable under the criteria established by 35 U.S.C. §103.

Withdrawal of the rejection of claim 11 is respectfully requested. Claims 12-21 depend, directly or indirectly, from claim 11 and are believed allowable for the same reasons as claim 11, as well as for the detailed subject matter recited therein.

Withdrawal of the rejection and passage of this application to allowance is respectfully requested.

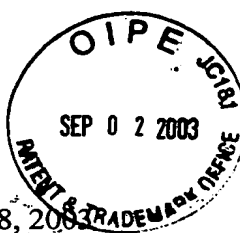
Respectfully submitted,

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ADDRESS AND CERTIFICATE OF MAILING ATTACHED

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the 28th day of August, 2003.

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